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# MIDWIVES IMPLEMENTATION OF INTEGRATED MANAGEMENT OF NEONATAL AND CHILDHOOD ILLNESSES: A SURVEY OF SELECTED PRIMARY HEALTH CENTRES IN ANAMBRA STATE, NIGERIA

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## ABSTRACT

*The aim of this study was to investigate the implementation of integrated management of neonatal and childhood illnesses (IMNCI) by midwives in selected primary health centers in Anambra State, Nigeria. The sample consisted of 264 midwives who were randomly selected for participation. Data were collected using a structured questionnaire, and the reliability of the instrument was assessed using Cronbach's alpha coefficient, which yielded a value of 0.681, indicating good reliability. After data collection, 240 questionnaires were considered suitable for analysis. Data were analyzed using SPSS version 20 for Windows, with descriptive statistics (frequencies and percentages) used for analysis. Hypotheses were tested using Pearson chi-square at a significance level of  $P < 0.05$ . The demographic characteristics of the respondents in this study revealed that the majority were aged 20-30 (41.7%), female (99.2%), Christians (96.4%), married (85%), of Igbo ethnicity (84.2%), and from Anambra Central (68.8%). The results indicated a high level of implementation of the IMNCI strategy by midwives in the selected primary health centers (mean score of 3.72). Additionally, the midwives demonstrated a high level of knowledge regarding the IMNCI strategy (mean score of 4.4). Most of the midwives (99.2%) had undergone IMNCI training, with the majority (37.5%) receiving the training within the past year, for a duration of 1 week, covering all three components of the IMNCI training. The study also identified several factors influencing the implementation of IMNCI, including the use of standardized child health files with IMNCI recording forms (mean score of 3.10), availability of the national essential drug list (mean score of 2.87), improved supervision and monitoring (mean score of 3.90), increased confidence and skills of midwives in under-5 case management through IMNCI (mean score of 4.62), and frequent availability of IMNCI wall charts and chart booklets (mean score of 4.14). Two hypotheses were tested, and the results indicated that there was no significant association between the level of knowledge*

*and implementation of IMNCI ( $\chi^2 = 9.64, P = 0.141$ ). Similarly, the training of midwives did not show a significant association with the implementation of the IMNCI strategy. It is worth noting that the IMNCI strategy can effectively reduce morbidity and mortality among children under five if it is implemented properly and efficiently, with adequate supervision.*

**Keywords:** Midwives: Integrated Management of Neonatal and Childhood Illnesses:

## INTRODUCTION

Health worker training plays a crucial role in the implementation of integrated management of childhood illnesses. However, the coverage of health workers trained in IMNCI remains low in several countries, including Nigeria. Annually, approximately 1.12 million neonatal deaths occur in the African region, accounting for a quarter of under-five deaths (Prinja, Bahuguna, Mohan, Mazumders, Taneja, & Bhandari, 2016). According to the authors, half of these deaths originate from five countries: Ethiopia, Nigeria, Democratic Republic of Congo, United Republic of Tanzania, and Uganda. In a study conducted by Seid and Sendo (2018) in four districts of the West Arsi Zone of Ethiopia, the most common factors hindering the implementation of IMNCI were identified as a lack of trained health workers. The Lagos Ministry of Health (2017) states that in Nigeria, one out of every five children dies before their fifth birthday, and 70% of these deaths are attributed to one or a combination of six major diseases: malaria, acute respiratory infection (ARI), including pneumonia, diarrhea, measles, malnutrition, and increasingly, HIV/AIDS and neonatal conditions addressed by the Integrated

Management of Neonatal and Childhood Illness strategy. Adesokan (2017) explained that in Nigeria, children under the age of five constitute 20% of the total population. The infant and under-five mortality rates are 100/1000 and 201/1000, respectively. According to her, childhood diseases, particularly pneumonia and malnutrition, account for 80% of deaths in children under the age of five.

Globally, under-five years children's welfare program is to reduce morbidity and mortality, still with all these plans, quality of health care system and socioeconomic development of the country, average annual rate of reduction has remained persistently low in many countries in sub-Saharan Africa and south Asia region (Shrivastava & Rameses, 2013). Uneke, Somber, Keita, Lokosson, Johnson & Onugolo-Zogo (2013) posited that with Nigeria population of over 160 million people, it is very disheartening to know that we still have weak health system with poor health outcome as it relates to child health. Health workers training is regarded as key to implementation of IMNCI, however the number of trained healthcare providers in IMNCI remains low in many countries Kiplogat, Musto, Mwizaholoya & Morona, (2014), these authors conducted a study in Tanzania on factors influencing the implementation of integrated management of childhood by health workers in public health centres and it was discovered that low initial training coverage among health care workers was seen as one of the factors influencing the implementation of the strategy.

According to WHO, (2019) there is concern on the ill-advice of the parents of the children on where to take their children to for proper treatment; and lamented on the poor assessment and treatment by these healthcare providers. Furthermore, the results of surveys carried out by WHO (2016) in WHO (2019) revealed that many sick children are not properly assessed and treated by these health care providers and in their analysis, they were able to find out that, first level facilities in low-

income countries, diagnostic supports such as radiology and laboratory services were minimal or non-existent and drugs and equipment were often insufficient and unavailability of equipment with low turnout of patients; with insufficient and unavailability of medical equipment, the health care workers tend to carry out clinical procedures using improvise, which may lead to complications. These revealed challenges of inadequacies and non-existence of modern healthcare facilities in the low-income countries, including Nigeria, these compelled the health-care workers to resort to diagnosing through history, signs and symptoms. The above factors made provision of quality care to children a serious challenge. These barriers were addressed by WHO and UNICEF by developing a strategy called integrated management of childhood illness [IMCI] in the mid-1990s (WHO, 2017).

The World Health Organization (2016) projected that childhood illnesses would continue to be major contributors to child mortality globally unless significant efforts are made to control them. UNICEF/WHO (2019) reported that sick children in primary health centers are often brought late with various medical conditions, and over 10 million children in developing countries die before their fifth birthday, with seven out of 10 deaths attributed to childhood illnesses. These diseases pose a higher risk of morbidity and mortality due to poor living conditions, lack of recognition by parents, and limited access to drugs, equipment, and training for healthcare professionals (Shemsi, 2014). It is essential to adopt an integrated approach to child health and development to address multiple conditions in a holistic manner. This led to the development of the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) strategy, which aims to incorporate the assessment and treatment of major childhood illnesses (Shemsi, 2014). The introduction of the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) was deemed necessary by the World Health Organization (WHO, 2019) due to the complex nature of



multiple conditions in children seeking medical treatment in developing countries. IMNCI is defined as an integrated approach to child health that aims to reduce death, illness, and disability, promote growth and development, and improve the quality of care for children under five years of age (LiniVivek, 2013). Implemented in over 100 countries worldwide, IMNCI primarily focuses on reducing childhood mortality and enhancing the management of major childhood illnesses at primary health care facilities (Ali, 2015). It encompasses preventive and curative measures, extends interventions to homes and communities, and aims to strengthen the health care system (Linivivek et al., 2018). The IMNCI strategy involves three key approaches: improving healthcare workers' case management skills, enhancing the health system, and promoting family and community health practices. To achieve meaningful impact, approximately 60% of healthcare workers should manage under-five illnesses in 80% of health facilities, necessitating their training in IMNCI case management and effective supervision (Shemsi, 2016).

In Nigeria, ensuring the availability of competent health care providers remains a major challenge, given shifting health needs, limited resources, and global changes (WHO, 2018). Numerous studies conducted in various countries have highlighted the inadequate implementation of the IMNCI strategy, attributing it to factors such as lack of training, poor supervision, insufficient availability of essential IMNCI drugs, health workers' perceptions, staff shortages, nature of the strategy, and lack of government support (Shemsi, 2016). Childhood mortality continues to pose serious problems in developing countries, with nearly 11 million children under the age of five dying from preventable and treatable illnesses such as measles, malnutrition, acute respiratory infections, diarrhoea, and other diseases (UNICEF, 2012). Inadequate support from stakeholders and the imposition of charges, often referred to as "cost sharing fund," further hinder the

implementation of the IMNCI policy (Silali, 2014). These preventable childhood diseases are more prevalent in communities.

In an effort to increase the life expectancy of children under five years old and reduce child mortality, the government of Anambra State has established approximately 253 primary health care centers, excluding health posts, general hospitals, and state-owned teaching hospitals. These primary health care centers focus primarily on preventive measures with limited medical intervention. It is believed that the implementation of the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) strategy, coupled with the training of healthcare professionals in IMNCI interventions and implementations, will significantly improve the well-being of children under five in the community. However, the lack of training in the IMNCI strategy among many healthcare professionals and midwives in these health centers may contribute to high morbidity and mortality rates among children under five in the state. The researchers identified a scarcity of available data and literature regarding the implementation of the IMNCI strategy in Anambra State. This lack of information hampers the development of intervention strategies in line with Millennium Development Goal 4 (MGD4) and the Sustainable Development Goals (SDGs). Therefore, the purpose of this study is to investigate the implementation of the IMNCI strategy by midwives in primary health care centers in Anambra State.

### **Objective**

1. To determine the midwives' implementation level of integrated management of neonates and childhood illnesses (IMNCI) in selected primary centres in Anambra state.
2. To assess the knowledge of the midwives towards IMNCI strategy in Anambra state
3. To determine the proportion of midwives trained in IMNCI tool in Anambra state.

4. To identify the factors militating against the implementation of Integrated management of Neonatal and childhood illnesses by midwives.

### Research questions

1. What is the midwives' implementation level of integrated management of neonates and childhood illnesses in selected primary centres in Anambra state?
2. What is the level of knowledge of the midwives on IMNCI strategy in primary health centres in Anambra state?
3. What proportion of midwives has been trained on IMNCI?
4. What are the factors militating against the implementation of the tool by midwives in Anambra State?

### Hypotheses

HO1: Level of knowledge has no significant association with midwives' implementation of strategy in Anambra State.

HO2: Training on IMNCI has no significant effect on the midwives' implementation on IMNCI in Anambra State.

### METHODOLOGY

**Design:** This study was conducted using a descriptive cross-sectional survey design.

**Setting:** The study was carried out in Anambra State. Anambra is a state in south-eastern Nigeria. The capital and seat of government is Awka. It has 21 Local Government Areas and about 177 Communities (ANSG, 2000). It is bounded by Delta State to the west, Imo State and Rivers State to the south, Enugu State to the east, and Kogi State to the north. According to the National Population Commission (2010), the State has a population of 2,796,475 in 1991, but rose to 4,182,032 in 2006 and 4,461,942 in 2011. Anambra is the eight most populated states in the Federal Republic of Nigeria and the second most densely populated state in

Nigeria after Lagos state. The indigenous ethnic groups in Anambra state are the Igbo (98% of population) and a small population of Igala (2% of the population), who live mainly in the north-western part of the state.

In the health setting, the state is blessed with government owned health care facilities; 3 teaching hospitals, 10 general hospitals, and 253 primary health centres (PHCS). The people are predominantly Christians with few traditional and traces of Muslims. They are mostly civil servants, importers and exporters and this might be the reason the Onitsha main market is known as the biggest market in West Africa; Large-scale manufacturers like Innoson cars, and those living around the Riverine like Ogbaru and Anambra areas are mostly farmers. They believe that ill health is caused by diseases, spiritual manipulation, and sin.

**Population of the Study:** The population of the study consists of the 760 midwives in the primary health centres in Anambra State of Nigeria, the midwives in Health post, Teaching, General, Private, Mission, cottage hospitals were not counted. The population is distributed across the 253 primary health centres in Anambra state.

**Sample Size Determination:** The Taro Yamani (1964) formula was adopted for sample size determination. Sample size determined was 264 midwives.

**Sampling Techniques:** Simple random sampling technique was used to select 264 midwives from all the senatorial zones for this study. However, the proportional sampling technique was also applied. This was done because the researcher believes that to capture the opinion of all the midwives as it pertains to Anambra State.

**Data Collection:** The instrument for data collection in this study was a structured questionnaire. the questionnaire comprised two parts: Part A dealt with the biographic information of respondents while Part B covered item-questions addressing the research questions. The filling of the questionnaire was anonymous to ensure

confidentiality and objective response. Informed consent was obtained from the selected midwives. The respondents were assured of confidentiality of information. Adequate explanations were given to the midwives at the beginning on one-to-one basis to clarify issues that may be raised in the questionnaire. Trial tested to ensure content and construct validity. Estimation of the internal consistency of the items was obtained using the Cronbach's Alpha. The data collected was analysed with Chi-square.

**Ethical Approval Details:** The study received ethical clearance from Anambra State Ministry

of Health. Participation in the study was voluntary and confidentiality was maintained by not using names.

## RESULTS

### Demographic Information of Respondents

Table 1 shows the demographic characteristics of the study population. Data indicates that majority (41.7%) of the participants were of the age group 20 – 30 years females (99.2%), Christians (96%), Muslim (1%), Others (3%) married (85%), Igbo's (84.2%) and were from Anambra Central (65.8%).

**Table 1. Demographic characteristics of the Respondents (n = 240)**

Characteristics	Number of Subjects	Percentage
<b>Age Group (years)</b>		
20 - 30	100	41.7
31 – 40	50	20.8
41 – 50	66	27.5
>50	24	10.0
<b>Gender</b>		
Males	2	0.8
Females	138	99.2
<b>Religion</b>		
Christianity	240	96.
Muslim		1
Others		3
<b>Marital Status</b>		
Married	204	85.0
Single	18	7.5
Widowed	4	1.7
Separated	2	0.8
Not Stated	12	5.0
<b>Ethnicity</b>		
Igbo	202	84.2
Hausa	8	3.3
Yoruba	6	2.5
Not Stated	24	10.0
<b>Senatorial District</b>		
Anambra South	52	21.7
Anambra North	26	10.8
Anambra Central	158	65.8
Not Stated	4	1.6

Table 2 presents the midwives' responses regarding the implementation of the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) strategy in Anambra State. The data reveals that the majority of midwives agreed that IMNCI is a user-friendly strategy for health workers (70%). However, they disagreed that IMNCI is easy to understand and apply (59.2%) and strongly disagreed that IMNCI is difficult to understand and apply (28.3%). Furthermore, there was a strong

agreement that poor patient-nurse ratio hinders the use of IMNCI strategy, and a majority agreed that there is a lack of IMNCI follow-up training by IMNCI facilities (55%). The mean score for each item indicates a high level of strategy implementation, with a total mean score of 3.72 in this study, suggesting a high implementation level of integrated management of neonates and childhood illnesses among midwives in selected Primary Health Centers in Anambra State.

**Table 2. Implementation Level of Integrated Management of Neonates And Childhood Illnesses**

Strategy Implementation	SA	A	U	D	SD	Mean
IMNCI is a user -friendly strategy for health workers	50 (20.8)	168(70.0)	6 (2.5)	12 (5.0)	4 (1.7)	4.0
IMNCI is easy to understand and apply	48 (20.0)	142(59.2)	12 (5.0)	18 (7.5)	20(8.3)	3.8
IMNCI is difficult to understand and apply	60 (25.0)	56 (23.3)	30(12.5)	68(28.3)	18(7.5)	3.3
Poor patient-nurse ratio does not allow for the use of IMNCI strategy	128(53.3)	54 (22.5)	10 (4.2)	38(15.8)	10(4.2)	4.1
There is lack of IMNCI follow - up training by IMNCI facilities.	26 (10.8)	132(55.0)	18 (7.5)	50(20.8)	14(5.8)	3.4
<b>Total Average Score</b>	<b>62 (26)</b>	<b>110(46)</b>	<b>15(6.34)</b>	<b>37(15.5)</b>	<b>13(5.5)</b>	<b>3.72</b>

Table 3 shows the midwives' rating of strategy implementation of IMNCI. Data shows that a greater percentage (47.5%) of the midwives perceived the strategy implementation of IMNCI tool as good, 41.7% perceived it as being very good, 10% perceived it as being fair,

0.8% rated it as poor, while none perceived it as being very poor. The mean score  $\pm$  SD of the implementation of IMNCI is shown in Table 3. The overall mean score of strategy implementation of IMNCI (19.34) is rated as high.

**Table 3. The rating of strategy implementation of IMNCI**

Level of IMNCI Implementation	Implementation Score Range	Frequency	Percent	Mean Score	SD
Very Poor	0 – 5	0	0	0	0
Poor	6 – 10	2	0.8	10.0	-
Fair	11 – 15	24	10.0	13.41	1.52
High	16 – 20	114	47.5	18.68	1.30
Very high	>20	100	41.7	21.70	1.14
Overall	0 – 25	240	100.0	19.34	2.89

Table 3 shows the level of knowledge of midwives toward IMNCI strategy in Anambra State. Data shows that the sum of the mean score for knowledge questions was 21.98. The

mean score for the different knowledge items is as shown in Table 3. This study indicates that the level of knowledge of the midwives toward IMNCI strategy is high (4.4)

**Table 3 The Knowledge Level of Midwives Toward IMNCI Strategy in Anambra State**

Knowledge Items	Mean
Knowledge of illnesses managed under IMNCI	5.76
Knowledge of the steps in IMNCI case management	5.73
Knowledge of the group of children IMNCI case management steps are used for	3.53
Knowledge of the four main symptoms assessed in IMNCI	4.07
Knowledge of the management of some selected illnesses (malaria, diarrhoea, dehydration, severe febrile) in children	2.87
<b>Sum of mean</b>	<b>4.4</b>

Table 4 shows the rating of midwives' level of knowledge toward IMNCI strategy in Anambra State. Of the 240 midwives, who participated in the study, data indicated that 14 (5.8%) did not respond to the questions. Among the respondents (n =226), majority

(83.2%) had good knowledge of IMNCI strategy and 16.8% had fair knowledge of IMNCI strategy. The mean score  $\pm$  SD is shown to increase as the rating of knowledge increases (Table 3). The overall mean knowledge score of the midwives (21.98) is rated as high.

**Table 4:** midwives' level of knowledge toward IMNCI strategy

Level of Knowledge	Knowledge Score Range	Number of Midwives	Percent	Mean Score	Standard Deviation
Poor	0 – 10	0	0	0	0
Fair	11 – 20	38	16.2	18.10	1.88
High	>20	188	83.2	24.40	2.55
Overall	0 – 32	226	100.0	21.98	6.40



Table 5 shows the proportion of midwives trained in IMNCI tool in Anambra State. Data indicates that 99.2% (n = 238) of the midwives had undergone IMNCI training. A greater percentage (37.5%) of the midwives (n = 238) received the training within the last 1 year, followed by those who received the training within 2 years (35.8%) and 6 months (14.2%) ago. Those who had the training within the last 5 years had the lowest percentage (11.7%). All

the respondents (n = 238) indicated that the duration of the training was 1 week, and that they were trained on the three components of the IMNCI training. This study indicated that the majority of midwives (99.2%) undergo the IMNCI training, out of which majority (37.5%) received the training within the last 1 year, for 1 week, in the three components of the IMNCI training.

**Table 5. The proportion of midwives trained in IMNCI tool in Anambra State**

Questions	Frequency	Percentage
Have you undergone IMNCI training?		
None	2	0.8
Yes	238	99.2
When was the last time the training was obtained by midwives?		
Within last 6 months	34	14.2
Within 1 year	90	37.5
Within 2 years	86	35.8
Within 5 years	28	11.7
What was the duration of the training received by the midwives		
1 week	238	100
Others	0	0
What components of the training were the midwives trained on?		
3 components of IMNCI	238	100
Others	0	0

Table 5 presents the responses of midwives regarding factors that promote the implementation of the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) strategy. The data shows that the majority of midwives disagreed that the use of standardized child health files with IMNCI recording forms, compulsorily filled by midwives at every child consultation promotes IMNCI (37.5%). They also strongly disagreed that the availability of the national essential drug list promotes IMNCI (35%). However, they agreed that improved supervision and monitoring promotes IMNCI (58.3%), and strongly agreed that boosted confidence and skills of midwives by IMNCI in under 5 case management (67.5%) and training staff always

referring to chart booklets (55%) promote IMNCI. The mean score for each item indicating the level of factors promoting IMNCI is shown in Table 9. Among the factors, boosted confidence and skills of midwives by IMNCI in under 5 case management had the highest mean score of 4.62. The study reveals that the factors influencing the implementation of IMNCI include the use of standardized child health files with IMNCI recording forms, availability of the national essential drug list, improved supervision and monitoring, boosted confidence and skills of midwives in under 5 case management, and frequent availability of IMNCI wall charts and chart booklets, with mean scores of 3.10, 2.87, 3.90, 4.62, and 4.14, respectively.

**Table 5. Factors Influencing the Implementation of IMNCI**

FACTORS	SA	A	U	D	SD	Mean
The use of standardized child health files with MNCI recording forms, filled by the midwives at every child consultation	62(25.8)	50(20.8)	8 (3.3)	90(37.5)	30(12.5)	3.10
Availability of national essential drug list,	44 (18.3)	66 (27.5)	30(12.5)	16 (6.7)	84(35.0)	2.87
Improved supervision and monitoring	58(24.2)	140 (58.3)	10 (4.2)	30(12.5)	2 (0.8)	3.90
Boosted confidence and skills of midwives by IMNCI in under 5 case management	162 (67.5)	72 (30.0)	0 (0)	6 (2.5)	0 (0)	4.62
Frequent availability of IMNCI wall charts and chart booklets	126 (52.5)	58 (24.2)	34 (14.2)	8 (3.3)	14(5.8)	4.14

Table 6 shows the midwives' rating of factors promoting the implementation of IMNCI. Data indicates that a greater percentage (41.7%) of the respondents rated the factors as strong and very strong respectively, 16.7% rated them as being fair. On the other hand, none perceived

the factors as being either weak or very weak. The mean score  $\pm$  SD of the promoting effect of the factors is shown in Table 10. The sum of mean score of the factors (18.77) is rated as strong.

**Table 6. Rating of factors promoting the implementation of IMNCI**

Rating of Factors	Militating Score Range	Number of Midwives	Percent	Mean Score	Standard Deviation
Very weak	0 – 5	0	0	0	0
Weak	6 – 10	0	0	0	0
Fair	11 – 15	40	16.7	13.15	0.86
Strong	16 – 20	100	41.7	17.16	0.64
Very Strong	>20	100	41.7	22.64	0.68
Overall	0 – 25	240	100.0	18.77	3.62

**Hypotheses**

Table 7 shows the association between the level of knowledge and implementation of strategy by midwives in Anambra State. Chi-square test ( $X^2 = 9.64$ ;  $p = 0.141$ ) of association indicated

lack of significant association between level of knowledge and implementation of strategy by midwives. This study implied that there is no significant association between level of knowledge and implementation of strategy by midwives.

**Table 7. Association between Respondents’ level of knowledge and implementation of strategy**

Level of Implementation	Level of Knowledge			Total
	Poor	Fair	Good	
Poor	0 (0)	0 (0)	2 (100)	2 (100)
Fair	2 (8.3)	4 (16.7)	18 (75.0)	24 (100)
Good	10 (8.8)	12(10.5)	92 (80.7)	56 (100)
Very Good	2 (2.0)	22(22.0)	76 (76.0)	50 (100)
Total	14 (5.8)	38(15.8)	188 (78.3)	240(100)

Data is expressed as frequency (%). Chi –square coefficient = 9.64; P = 0.141

Table 8 shows the comparison of mean scores of IMNCI implementation between trained and untrained midwives in Anambra State. Man Whitney U test ( $p = 0.198$ ) indicated that there was no significant difference in IMNCI

implementation score between the trained and untrained midwives. This shows lack of significant effect of training on the midwives implementation of IMNCI in Anambra State.

**Table 8. Comparison between IMNCI trained and untrained midwives**

Training Status	N	Mean	Mean Rank	Man Whitney U Coefficient	Sig.
Untrained	2	18.0 ± 0	58.50	114.0	0.198
Trained	238	19.35 ± 2.90	121.02		

## DISCUSSION

This study assesses the midwives' implementation of integrated management of neonates and childhood illnesses in selected primary centres in Anambra state. Total of 264 midwives were used for the study from selected Primary health centres in Anambra. The demographic characteristics indicates that majority (41.7%) of the participants were of the age group 20 – 30 years females (99.2%), Christians (100%), married (85%), Igbo's (84.2%) and were from Anambra Central (65.8%).

Our study found that the implementation level of the integrated management of neonates and childhood illnesses (IMNCI) by midwives in selected Primary Health centers in Anambra state is high. This contradicts the findings of Okae (2018), who reported a low implementation level of IMNCI protocols among health workers in the Ashied Keteke and Ablekuma sub metropolis of Accra Region. Similarly, Sendo's survey (2016) on IMNCI implementation by nurses in the West Arsi zone of Ethiopia revealed challenges such as lack of trained staff, essential drugs and supplies, and irregular supportive supervision, which is in contrast to our findings.

Regarding the level of knowledge, our study observed a high level of knowledge among midwives towards the IMNCI strategy. This contradicts the findings of Mukwnga, Kiguli & Kibitz (2014), who reported a low overall knowledge level of IMNCI in Northern Uganda. However, our findings are consistent with Mohamed's study (2018), which showed a high knowledge level among healthcare workers towards the implementation of the strategy in Wete District, North Region, East Africa. Mohamed's study also highlighted the improper assessment of IMNCI indicators due to ineffective supervision, which aligns with our findings regarding knowledge.

The result of this study indicated that majority of midwives (99.2%) undergo the IMNCI training, out of which majority (37.5%) received the training within the last 1 year, for

1 week, in the three components of the IMNCI training. This is in line with Sendo (2016) where half of the nurses (57.8%) were trained on the implementation of IMNCI in four districts of West Arsi zone of Ethiopia. This study agrees with Kiplagat, Musto, Mwizaholoya & Morona, (2014), who noted that only 51% health care workers at public health centres' & dispensaries in Mwanza Tanzania, have been trained in IMNCI. This study does not concur with Adelkanye & Odetola (2014) who revealed that only few nurses have been trained on IMNCI strategy in selected hospitals in Ibadan, Nigeria.

The study reveals that factors Influencing the Implementation of IMNCI are as follows; The use of standardized child health files with MNCI recording firms, filled by the midwives at every child consultation (3.10), Availability of national essential drug list (2.87), Improved supervision and monitoring (3.90), Boosted confidence and skills of midwives by IMNCI in under 5 case management (4.62) and Frequent availability of IMNCI wall charts and chart booklets (4.14), respectively. This is line with a work carried Kumar, Gupta and Aggra Wal (2011) where activities were mapped to help in the implementation were supervision of health workers and nurses, essential drugs were made available. This study is not consistent with Adelkanye & Odetola (2014) who revealed that IMCI implementation is influenced by institutional support, nurses' attitude and parents or guardians' compliance. This study is not in line with Kiplagat, Musto, Wizausholya, & Kiplagat et al (2014) who shows that factors influencing the implementation of integrated management of childhood illness (IMCI) in Mwanza Tanzania, include health care workers understanding of IMCI approach (69%) and positive attitude in managing common childhood illnesses (71%).

This study found no significant association between the level of knowledge and implementation of the IMNCI strategy by midwives ( $X^2 -9.64, P=0.141$ ). These results contradict the findings of Adelkanye & Odetola



(2014), who observed a significant association between nurses' knowledge of IMCI and their implementation in selected hospitals in Ibadan, Nigeria. Similarly, Asha et al. (2018) reported no statistically significant association between the level of knowledge of staff nurses and their selected personal variables, except for qualification. Therefore, this study partially supports the null hypothesis, indicating that the level of knowledge of staff nurses regarding IMNCI guidelines is not influenced by their selected personal variables, which aligns with previous research. Additionally, there was no significant difference in IMNCI implementation score between trained and untrained midwives. Contrary to the findings of Arami FAF (2017), who suggested that pre-service IMCI training can have a significant influence on the assessment and management skills of healthcare workers, this study did not support such a conclusion.

## CONCLUSION AND RECOMMENDATIONS

The implementation of the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) strategy by midwives is greatly influenced by their knowledge and training on the strategy. A significant number of midwives have received training on IMNCI procedures, and the level of implementation was perceived as user-friendly. However, the midwives found it challenging to use guidelines due to the time and effort required. The majority of respondents identified supervision, inconsistent maintenance of the IMNCI drug list, and tool sustainability as hindrances to implementation. Interestingly, the study found no significant impact of midwives' knowledge and training on the implementation of the strategy. Based on these findings, it is recommended that the government collaborates with IMNCI facilitators to enhance the healthcare sector by providing necessary facilities and implementing training programs for midwives and other healthcare professionals.

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